

SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 11-K

 X ANNUAL REPORT PURSUANT TO SECTION 15(d) OF THE SECURITIES
EXCHANGE ACT OF 1934 for the fiscal year ended December 31, 2004

or

 TRANSITION REPORT PURSUANT TO SECTION 15(d) OF THE
SECURITIES EXCHANGE ACT OF 1934 for the transition period from
_____ to _____

Commission File Number 33-35050

- A. Full title of the plan and the address of the plan, if different from that of the issuer named below:

Wisconsin Public Service Corporation
Employee Stock Ownership Plan

- B. Name of issuer of the securities held pursuant to the plan and the address of its principal executive office:

WPS Resources Corporation
700 North Adams
P. O. Box 19001
Green Bay, WI 54307-9001

The Exhibit Index is on page 15 of the sequentially numbered pages.

REQUIRED INFORMATION

The following financial statements and schedules of the Wisconsin Public Service Corporation Employee Stock Ownership Plan, prepared in accordance with the financial reporting requirements of the Employee Retirement Income Securities Act of 1974, as amended, are filed herewith.

**WISCONSIN PUBLIC SERVICE CORPORATION
EMPLOYEE STOCK OWNERSHIP PLAN**

**Financial Statements as of December 31, 2004 and
2003 and for the Years Then Ended and Supplemental
Schedule as of December 31, 2004 and Report of
Independent Registered Public Accounting Firm**

**WISCONSIN PUBLIC SERVICE CORPORATION
EMPLOYEE STOCK OWNERSHIP PLAN**

TABLE OF CONTENTS

	Page
REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM	1
FINANCIAL STATEMENTS FOR THE YEARS ENDED DECEMBER 31, 2004 AND 2003:	
Statements of Net Assets Available for Benefits	2
Statements of Changes in Net Assets Available for Benefits	3
Notes to Financial Statements	4-7
SUPPLEMENTAL SCHEDULE:	
Form 5500, Schedule H, Part IV, Line 4i - Schedule of Assets (Held at End of Year) as of December 31, 2004	8

All other schedules required by Section 2520.103-10 of the Department of Labor's Rules and Regulations for Reporting and Disclosure under the Employee Retirement Income Security Act of 1974 have been omitted because they are not applicable.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Wisconsin Public Service Corporation
Employee Benefit Plans Administrator Committee:

We have audited the accompanying statements of net assets available for benefits of Wisconsin Public Service Corporation Employee Stock Ownership Plan (the "Plan") as of December 31, 2004 and 2003, and the related statements of changes in net assets available for benefits for the years then ended. These financial statements are the responsibility of the Plan's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. The Plan is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. Our audits included consideration of internal control over financial reporting as a basis for designing audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Plan's internal control over financial reporting. Accordingly, we express no such opinion. An audit also includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, such financial statements present fairly, in all material respects, the net assets available for benefits of the Plan as of December 31, 2004 and 2003, and the changes in net assets available for benefits for the years then ended in conformity with accounting principles generally accepted in the United States of America.

Our audits were conducted for the purpose of forming an opinion on the basic financial statements taken as a whole. The supplemental schedule of assets (held at end of year) is presented for the purpose of additional analysis and is not a required part of the basic financial statements, but is supplementary information required by the Department of Labor's Rules and Regulations for Reporting and Disclosure under the Employee Retirement Income Security Act of 1974. This schedule is the responsibility of the Plan's management. Such schedule has been subjected to the auditing procedures applied in our audit of the basic 2004 financial statements and, in our opinion, is fairly stated in all material respects when considered in relation to the basic financial statements taken as a whole.

/s/ Deloitte & Touche LLP

Milwaukee, Wisconsin
June 6, 2005

WISCONSIN PUBLIC SERVICE CORPORATION EMPLOYEE STOCK OWNERSHIP PLAN

STATEMENTS OF NET ASSETS AVAILABLE FOR BENEFITS DECEMBER 31, 2004 AND 2003

	2004	2003
ASSETS:		
Investment in common stock of WPS Resources Corporation, at fair market value	\$ 109,359,542	\$ 95,875,842
Receivable from Wisconsin Public Service Corporation	145,136	143,363
Other assets	<u>145</u>	<u>577</u>
Total assets	<u>109,504,823</u>	<u>96,019,782</u>
NET ASSETS AVAILABLE FOR BENEFITS	\$ <u>109,504,823</u>	\$ <u>96,019,782</u>

See notes to financial statements.

WISCONSIN PUBLIC SERVICE CORPORATION **EMPLOYEE STOCK OWNERSHIP PLAN**

STATEMENTS OF CHANGES IN NET ASSETS AVAILABLE FOR BENEFITS **YEARS ENDED DECEMBER 31, 2004 AND 2003**

	2004	2003
ADDITIONS:		
Employer contributions	\$ 7,677,777	\$ 5,672,563
Investment income:		
Dividend income	4,731,950	4,421,190
Interest income	2	573
Net appreciation in fair value of common stock	<u>7,995,765</u>	<u>15,067,620</u>
Total investment income	<u>12,727,717</u>	<u>19,489,383</u>
Total additions	20,405,494	25,161,946
DEDUCTIONS:		
Distributions to participants	6,625,678	5,632,821
Dividend distributions	<u>294,775</u>	<u>255,902</u>
Total deductions	<u>6,920,453</u>	<u>5,888,723</u>
Net increase	13,485,041	19,273,223
NET ASSETS AVAILABLE FOR BENEFITS:		
Beginning of year	<u>96,019,782</u>	<u>76,746,559</u>
End of year	<u>\$ 109,504,823</u>	<u>\$ 96,019,782</u>

See notes to financial statements.

WISCONSIN PUBLIC SERVICE CORPORATION EMPLOYEE STOCK OWNERSHIP PLAN

NOTES TO FINANCIAL STATEMENTS DECEMBER 31, 2004 AND 2003

1. DESCRIPTION OF THE PLAN

The following brief description of the Wisconsin Public Service Corporation Employee Stock Ownership Plan (the "Plan") is provided for general information purposes only. Participants should refer to the plan document, as amended, for more complete information.

General--Wisconsin Public Service Corporation (the "Company"), a wholly-owned subsidiary of WPS Resources Corporation ("WPSR"), established the Plan effective January 1, 1975 as a defined contribution employee stock ownership plan. The Plan invests principally in WPSR common stock. The Plan is designed to comply with Section 4975(e)(7) and the regulations thereunder of the Internal Revenue Code of 1986, as amended (the "Code"), and is subject to the provisions of the Employee Retirement Income Security Act of 1974, as amended ("ERISA").

Overall responsibility for administering the Plan rests with the Employee Benefits Administrator Committee (the "Committee") which consists of WPSR employees. Effective April 1, 2003, Wells Fargo Bank N.A. ("Trustee") is responsible for the management and control of the Plan's assets and has discretionary responsibility for the investments and management of such assets. Also effective April 1, 2003, Wells Fargo Bank N.A., is the recordkeeper for the Plan and maintains the individual participant accounts. Prior to April 1, 2003, State Street Bank and Trust Company was the Trustee and CitiStreet was the recordkeeper for the Plan.

Eligibility--Employees of WPSR and its participating subsidiaries are generally eligible to participate in the Plan except for limited-term employees (unless limited-term employees work 1,000 hours and/or are participating in the Company's Employee Savings Plan), Upper Peninsula Power Company ("UPPCO") non-administrative employees, Empire State employees, and effective May 10, 2004, Sunbury non-administrative employees. Prior to May 10, 2004, Sunbury non-administrative employees were eligible to participate in the Plan. Limited-term employees are defined under the Plan as employees of the Company or any affiliate who are hired for a limited period of time, such as temporary summer help or as a student employee who is scheduled to perform services during summer or semester breaks.

Participant Accounts--The Plan is a defined contribution plan under which separate individual accounts are established for each participant. At the end of each quarter, each participant's account is allocated its proportionate number of shares and any change in fair market value since the preceding quarter. Fair market value is determined by the number of shares held and the closing price of the Company's stock for the coinciding day.

Vesting--Participants are immediately vested in their accounts.

Employer Contributions--Part of the Company contributions to the Plan reflect amounts included in the cost of service for rate setting purposes by the Public Service Commission of Wisconsin and Federal Energy Regulatory Commission.

Contributions for administrative employees are determined using a formula that is different than the formula for determining contributions for non-administrative employees. Contributions to the Plan on behalf of eligible administrative employees are made in WPS Resources common stock with a value equal to a 100% match on the first 4% and a 50% match on the next 2% of eligible pay that each participant defers into the Wisconsin Public Service Corporation Administrative Employees' Savings Plan. The total match is limited to a maximum of 5% of eligible pay. Such contributions totaled \$4,928,989 and \$4,536,337 for 2004 and 2003, respectively. Beginning October 26, 2003, Company contributions to the Plan on behalf of eligible non-administrative employees are based on 2% of a participant's gross pay, as defined. Also beginning October 26, 2003, pursuant to union negotiations, the Company contributes to the Plan on behalf of eligible non-administrative employees an additional 1.7% of a participant's base pay. Prior to October 26, 2003, Company contributions to the Plan on behalf of eligible non-administrative employees were based on 1% of a participant's gross pay, as defined. Contributions for non-administrative employees totaled \$2,748,788 and \$1,136,226 for 2004 and 2003, respectively.

Investments--Contributions to the Plan are non-participant directed. The Plan is invested primarily in WPSR common stock.

Payment of Benefits--Benefits paid to participants represent the amount paid during the year to participants who elected to receive the distribution of their vested account balance. Non-administrative participants may withdraw from their account shares that have been held at least seven years. Administrative participants may withdraw from their account shares that have been held prior to January 1, 2001 and for at least seven years. For administrative employees, shares received after January 1, 2001 may be withdrawn only upon termination or retirement.

Former employees may elect to receive distributions in the year following termination of employment, or may defer distribution until the year they attain age 69. Participants who die, become disabled or retire are entitled to distribution at the next withdrawal opportunity. To the extent provided for by a qualified domestic relations order, and as determined by the Administrator, a lump sum payment may be made to an alternate payee under such order at the next withdrawal opportunity. Fractional shares are paid in cash.

Dividend Distributions--Each eligible participant may elect, for dividends declared and payable on stock that is allocated to the participant account, to be paid in cash directly to the participant or be reinvested in the participant's account.

Voting Rights--Each participant is entitled to exercise voting rights attributable to the shares allocated to the participant's account. Each participant is notified by the Trustee prior to the time that such rights are to be exercised. The Trustee is not permitted to vote any share for which instructions have not been given by a participant.

Termination--Although it has not expressed any intention to do so, the Company reserves the right to terminate the Plan at anytime, subject to Plan provisions and applicable provisions of ERISA. If the Plan were to terminate, each participant's interest in the trust would be distributed to each participant or to each participant's beneficiary as prescribed by the Plan and the Code at the time of termination. Upon termination of the Plan, the Committee shall direct the Trustee to pay all liabilities and expenses of the trust fund.

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Basis of Accounting--The accompanying financial statements have been prepared in accordance with accounting principles generally accepted in the United States of America.

Investment Valuation and Income Recognition--Investments in WPS Resources common stock are stated at fair market value based on the closing price reported by the New York Stock Exchange at year-end. Dividends are recorded on the ex-dividend date. Interest income is recorded on the accrual basis. Purchases and sales of securities are recorded on a trade date basis.

Operating Expenses--All expenses of maintaining the Plan are initially paid by the Company, with reimbursement from affiliates for their share of these expenses, and thus are not reflected in the Plan's financial statements. Such expenses paid by WPSR were \$157,289 and \$175,766 for the plan years ended December 31, 2004 and 2003, respectively.

Payment of Benefits--Benefit payments to participants are recorded upon distribution.

Use of Estimates--The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires Plan management to make estimates and assumptions that affect the reported amounts of net assets available for benefits and changes therein. Actual results could differ from these estimates.

Risks and Uncertainties--The Plan utilizes various investment instruments, primarily investments in shares of WPS Resources Corporation common stock. Investment securities, in general, are exposed to various risks, such as interest rate, credit, and overall market volatility. Due to the level of risk associated with certain investment securities, it is reasonably possible that changes in the values of investment securities will occur in the near term and that such changes could materially affect the amounts reported in the financial statements.

3. INVESTMENT IN COMMON STOCK

The Plan is primarily invested in shares of WPS Resources common stock. These shares are held in a bank-administered trust fund. Included in other assets are amounts invested in short-term securities.

The fair market value and net appreciation in fair market value for the years ended December 31, 2004 and 2003 are as follows:

	Number of Shares at December 31, 2004	Fair Value at December 31, 2004 (\$49.96 Per Share)
Fair value of WPS Resources Corporation common stock - Held by the Plan	<u>2,188,942</u>	<u>\$ 109,359,542</u>

	Number of Shares at December 31, 2003	Fair Value at December 31, 2003 (\$46.23 Per Share)
Fair value of WPS Resources Corporation common stock - Held by the Plan	<u>2,073,888</u>	<u>\$ 95,875,842</u>

	2004	2003
Net appreciation in fair value of investments for the year	<u>\$ 7,995,765</u>	<u>\$ 15,067,620</u>

Investment securities are exposed to various risks including, but not limited to, interest rate, market and credit risks. Due to the level of risk associated with certain investment securities, it is at least reasonably possible that changes in the values of investment securities will occur in the near term.

4. EXEMPT PARTY-IN-INTEREST TRANSACTIONS

Certain Plan short-term investments are made in shares of mutual funds managed by Wells Fargo Bank N.A. Wells Fargo Bank N.A. is the trustee as defined by the Plan and, therefore, these transactions qualify as exempt party-in-interest transactions.

At December 31, 2004 and 2003, the Plan held 2,188,942 and 2,073,888 shares, respectively, of common stock of WPS Resources Corporation, the sponsoring employer, with a cost basis of \$66,685,538 and \$58,799,774, respectively. During the years ended December 31, 2004 and 2003, the Plan recorded dividend income of \$4,731,950 and \$4,421,190, respectively, from investments in common stock of WPS Resources Corporation.

5. TAX STATUS

The Internal Revenue Service has determined and informed the Company by a letter dated March 5, 2003, that the Plan and related trust were designed in accordance with applicable regulations of the Code. The plan has been amended since receiving the determination letter. However, the Company and the Plan administrator believe that the Plan is currently designed and operated in compliance with applicable requirements of the Code and the Plan and related trust continue to be tax-exempt. Therefore, no provision for income taxes has been included in the Plan's financial statements.

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SUPPLEMENTAL SCHEDULE FURNISHED
PURSUANT TO
DEPARTMENT OF LABOR'S RULES AND REGULATIONS

**WISCONSIN PUBLIC SERVICE CORPORATION
EMPLOYEE STOCK OWNERSHIP PLAN**

**FORM 5500, SCHEDULE H, PART IV, LINE 4i -
SCHEDULE OF ASSETS (HELD AT END OF YEAR)
DECEMBER 31, 2004**

Identity of Issue, Borrower, Lessor, or Similar Party	Description of Investment, Including Maturity Date, Rate of Interest, Collateral, Par, or Maturity Value	Cost	Current Value
WPS Resources Corporation*	2,188,942 shares of common stock	\$ 66,685,538	\$ 109,359,542
Wells Fargo Short-Term Investment Money Market Fund*	145 shares	<u>145</u>	<u>145</u>
		<u>\$ 66,685,683</u>	<u>\$ 109,359,687</u>

* Indicates a party-in-interest.

SIGNATURES

The Plan. Pursuant to the requirements of the Securities Exchange Act of 1934, the Plan Administrator of the Wisconsin Public Service Corporation Employee Stock Ownership Plan has duly caused this Annual Report to be signed on its behalf by the undersigned hereunto duly authorized, in the City of Green Bay and the State of Wisconsin this 28th day of June 2005.

WISCONSIN PUBLIC SERVICE CORPORATION
EMPLOYEE STOCK OWNERSHIP PLAN
PLAN ADMINISTRATOR

/s/ Joseph P. O'Leary
Joseph P. O'Leary
Member Plan Administrator Committee

/s/ Diane L. Ford
Diane L. Ford
Member Plan Administrator Committee

/s/ William J. Guc
William J. Guc
Member Plan Administrator Committee

/s/ Bernard J. Trembl
Bernard J. Trembl
Member Plan Administrator Committee

/s/ Bradley A. Johnson
Bradley A. Johnson
Member Plan Administrator Committee

EXHIBIT INDEX

**WISCONSIN PUBLIC SERVICE CORPORATION
EMPLOYEE STOCK OWNERSHIP PLAN**

FORM 11-K

Exhibit No.	Exhibit	Page Number in Sequentially Numbered Form 11-K
23.1	Consent of Deloitte & Touche LLP	

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in Registration Statement Nos. 333-59618 and 333-104787 on Form S-3, and 333-63101, 333-71990, 333-71992, 333-81134, and 333-93193 on Form S-8 of WPS Resources Corporation, and Registration Statement Nos. 333-97053 and 333-115405 of Wisconsin Public Service Corporation on Form S-3 of our report dated June 6, 2005, appearing in this Annual Report on Form 11-K of Wisconsin Public Service Corporation Employee Stock Ownership Plan for the year ended December 31, 2004.

/s/ Deloitte & Touche LLP

Milwaukee, Wisconsin
June 24, 2005